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Municipalization of the New Orleans Water System in the Nineteenth and Early Twentieth Centuries

By
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As the nineteenth century entered its last decades and the years of Reconstruction receded into the past, New Orleans began anew its struggle to modernize its water infrastructure. The problem, as usual, was threefold: How would improvements be financed? What role would government play? How could the sheer physical challenges of the swampy terrain be met? Requirements of piped-in water and drainage of the land had been prior concerns, and a need for a sewer system was added to the priorities.

Driving the city's struggle was the fact that the rest of the country was proceeding apace with improvements. At the end of the nineteenth century there grew up in America a movement that preached a can-do attitude and supported a strong belief that a studious approach to problems would reveal solutions. This movement, Progressivism, was attractive to urban community leaders who stood for "enforcement of middle-class standards of civic decency against greedy wealth and crooked politics," according to Arthur Schlesinger, Jr. (Schlesinger, 17-19) New Orleans had always had its share of the greedy and the political, but at this period the idea of civic decency actually began to take hold. As it turned out, proponents of both machine politics and civic improvement would manage to co-exist quite happily in New Orleans' fertile climate.

As an added impetus, health was a major concern. Epidemics, such as the yellow fever and cholera that regularly raked New Orleans, not only decreased the citizenry, they had a poor effect on the economy. Pure water, good drainage, sewage disposal: all these contributed to good

health. Good health meant good business. Thus, it followed that a forward looking city improved its infrastructure. And, indeed, the rate at which cities seized the initiative and municipalized their water supplies in this era, moving away from the private franchise holdings of water companies that had historically been thumbed up as political plums, was directly related to the obvious lowering of the death rate that other municipalizing cities had realized.

The municipalization of waterworks spread throughout the country as a "technological diffusion" in the late 1800s, and the rate at which it spread can be tracked by statistical methods taking into account the fact that "public decision makers, like private entrepreneurs, respond rationally to expectation of 'profit,' defined here in terms of improved sanitary conditions." (Levitan, 103-4)

Richard Levitan, in his 1999 Economics dissertation at the University of Pennsylvania, set up a model for the rate of municipalization of waterworks in American cities. The death rate from typhoid fever per 1,000 in population was one of the factors affecting the speed at which a city took over a private water company, and it followed that cities which owned their own waterworks were then more likely to install water purification equipment that resulted in fewer deaths. The rate at which municipalization occurred depended not only on how bad the mortality figures were, but also on how the private waterworks owners acted. (Levitan, 105)

In New Orleans, the situation was somewhat different. Although at the beginning of the Progressive era New Orleans water was supplied by a private company, the city had, in fact, already had prior experience with municipalization. For two periods in the nineteenth century,

from 1821 until 1833 and from 1869 until 1877 the water system of New Orleans was actually owned by the city. In both cases, the city would probably have preferred to leave the system in private hands and only acquired the waterworks as a last resort: in the 1820s when a private investment company failed, and in the 1860s when a bank-funded franchise monopoly expired.

By the end of the century the bad behavior of the then-current water company owners, plus public health concerns, were forcing the city again into a takeover posture. What drainage there was—some few canals with stationary paddlewheel pumping engines forcing water toward the lake—could scarcely be termed a system, but various stock companies had acquired drainage franchises over the years and the one current at century's end was infuriatingly inadequate. A sewerage system, having never been attempted, was simply an idea whose time had come in a town where "ripe" might easily have described the usual condition of gutter contents.

New Orleans had ample geographic problems to surmount. The city sits in a sort of dish between the Mississippi River and Lake Pontchartrain, crossed by only the occasional ridge of land along a perhaps now dry watercourse (Metairie Ridge and Gentilly Ridge for example.) Swamps ringed its boundaries, and, in fact, swampland extended in from the lake, keeping the city residents poised precariously near the river. The city was occasionally inundated either by breaks (crevasses) in the river levee or by heavy rainfall that could not drain off since the lake's water level was higher than its bounding swamp. The colonial era contributed navigation canals (such as the one connecting Bayou St. John with the rear of the French Quarter) but did little else.

When the Americans took possession of the city in 1803 New Orleans gained the advantage of United States engineering prowess. Mayor John Watkins in 1806 first suggested the city have a waterworks, not necessarily for pure drinking water, but for a dependable supply of water for fire protection and street and gutter cleaning (a necessity in the day of the horse and the privy).

First to take on the challenge was the English-born engineer and architect Benjamin Latrobe, whose friendship with Thomas Jefferson had already resulted in his being put in charge of design and construction on the United States Capitol building in Washington. By 1811 Latrobe had formed a stock company and received a franchise to provide New Orleans with water. He designed a steam pumped system to take river water over the levee and pipe it through hollow cypress logs along French Quarter streets. Water access was at corner pump boxes, and engines could "plug" in at fireplugs for firefighting or street cleaning. Unfortunately, Latrobe died of yellow fever in 1820 and the waterworks was sold to pay his debts. Thus, by purchasing the works for $20,000 at a sheriff's sale, the city of New Orleans took possession of its own municipal water system in 1821. (Blake, Jenssen, Latrobe, Jackson, Clark)

Judging by newspaper reports, the system the city had acquired was barely operational and the Mayor quickly requested that citizens be patient for the year that repairs would take (Louisiana Gazette, June 2, 1822)

The city hired a waterworks superintendent, Francis Ogden of New Jersey, a young engineer who had been an aide to Gen. Andrew Jackson and also held a patent on a low pressure

condensing engine. Ogden immediately set out for Philadelphia with City Councilman W. W. Montgomery to purchase cast iron pipes for the system. Ogden's journal of his buying trip with Montgomery chronicles his increasing frustration with Montgomery's insistence on purchasing pipe at the best profit for those New Orleans merchants providing the financing for the city. At one point Ogden testily wrote Montgomery that "perhaps the lives of thousands may be sacrificed to what I consider a most unimportant question, whether freight, commission, and insurance is to be paid to the manufacturer, or to the merchant" (Ogden, August 27, 1822). Ogden had pinpointed a major hazard of municipal ownership of infrastructure—how does a public body assign and regulate the private profits that are accrued by its agents and contractors?

Ogden's pipe finally arrived and the system continued to function, if erratically. On July 23, 1823, the New Orleans City Council passed a resolution asking that the waterworks quit pumping quite so much water, as the streets away from the river were flooding. As for Ogden, he gave up on local political battles and shortly left New Orleans. He was later named United States Consul in Bristol, England, retained his interest in engineering, and became the American champion of the inventor John Ericcson, creator of the ironclad ship "Monitor" (Appleton, Vol. IV; Ogden, Francis Barber).

By the 1830s, New Orleans, as did many other American cities, looked to private financing for infrastructure. The Commercial Bank of New Orleans was organized to build a New Orleans waterworks and received a 35 year franchise (fifteen percent of gross profits in the first five years, ten percent thereafter) from the Louisiana Legislature in 1833. The bank engaged a German-born engineer, Albert Stein, to design, build, and run it. Stein had built other

American waterworks, and had even constructed the first sand filtration system for Richmond, Virginia.

In New Orleans, Stein not only met deadlines, he exceeded specifications for water pressure. Stein constructed a giant brick reservoir near the River, at Richards and Religious Streets, and added additional street piping. This unfiltered river water began flowing from the new works in 1836. The system functioned through the middle of the 19th century, but service was limited—piping did not cover the entire inhabited part of town, and the water was never purified. (Stein)

When the banks' franchise expired in 1869, the city again purchased the waterworks, this time for what would amount to $2 million, paid for, as most city expenses were in that era, with a bond issue. (Daily Picayune, March 10, 1868).

When the waterworks came under city jurisdiction in 1869 in the Reconstruction Era, the man named Superintendent of the New Orleans City Water Works was a former Confederate General, Braxton Bragg. Beginning in 1869 Bragg ran the water works for a salary of $350 a year as superintendent and $100 as chief engineer (for which he had trained at the U.S. Military Academy at West Point.) (City Archives, Water Works letters, I, 23; Daily Picayune)

On Bragg's staff as assistant superintendent was a remarkable man. Edmond Rillieux was one of the children of a Free Woman of Color, Constance Vivant, and the white man with whom she was placéed (in common law marriage), Vincent Rillieux, who was the uncle of the French

Impressionist painter, Edgar Degas. Although their mixed racial heritage might have precluded any education for them in mid-nineteenth century America, the Rillieux children were part of the milieu of cosmopolitan New Orleans, and thanks to the support of their father, Edmond and his brother Norbert were both French trained. Norbert achieved fame as an engineer of sugar making equipment (and, it is said, offered a drainage plan for New Orleans that was not accepted.) (Benfey, 134, 182)

The letter-books of the Water Works are filled with familiar-sounding complaints, mostly addressed to the luckless Rillieux: "Water box in appurtenance of Dryades Market is out of order, Please have it repaired," reads a curt note from April 1, 1872; and the next day, April 2, "please have the party who does the paving for the Water Works to make the repairs necessary to the banquettes (sidewalks) fronting or bordering on the DeSoto School."

True to the political nature of New Orleans City Hall jobs, Rillieux received notice as soon as the new administration of Mayor Louis Wiltz took office. A note of December 2, 1872 directed Rillieux to "please turn over all material and documents appertaining to your office to Mr. Henry Brown, your successor." As an additional affront, a Rillieux relative received notice to leave his job as Water Works Foreman on December sixth. (Archives, Water Works)

Probably the Superintendent didn't enjoy running the waterworks, either. His obituary, on September 8, 1876, noted that "Gen. Bragg, after the War, took charge of the Water Works in this city. He thoroughly organized and perfected as much as possible that department, and then repaired to Texas. . ." Whether the General's westward retreat was occasioned by over exposure

to bureaucracy can not be known. (Daily Picayune.)

The constant complaining of the public at the poor service provided by an underfinanced municipality, the problems besetting a work force subject to fickle elected officials, and the drain on the public treasury of the upkeep of a crumbling infrastructure—the Water Works archives amply document a tale familiar to us today. What was true then is true now: city government does not make a profit by running its own water system, and someone in the private sector always believes they can not only make money at it, they can provide cheaper service.

The city was soon ready to unload its watery burden. In the Summer of 1871 the Louisiana Legislature passed the Crescent City Water Works bill, intending to pass the water system into private hands. What happened was a political nightmare—the Governor, Henry Clay Warmoth, claimed that since the signed bill was not in his hands exactly five days before the Legislative session ended (lacking 45 minutes of the necessary time) his Secretary of State George Bovee should not have promulgated it into law (as Bovee might have ordinarily done without the governor's signature.) Warmoth fired Bovee, who was finally reinstated by the Louisiana State Supreme Court in 1872. The city, in the meantime, kept the waterworks. (Binning, 252-258)

In 1877 the city was finally able to turn over the increasingly burdensome system to the New Orleans Waterworks Company. This company was supposed to build a new waterworks plant, add water mains to supply the entire city, and provide clear water, as opposed to the sediment laden Mississippi River water that users had been provided with in the past.

The New Orleans Waterworks Company's 50 year charter also allowed the city to continue allowing local firms to take their own water directly from the river, required the water company to furnish free water for city buildings and charitable institutions and, in a way still used to reward favored companies, the water company was exempt from city taxes. The tax exemption would end in 1886 and the city would begin paying not only for the fire hydrants, but for water use—at a much higher rate than the taxes brought in. (Magill, 59; Jackson, 154)

The company cleaned up and renovated the old reservoir, and extended street piping (St. Charles Avenue was piped in 1884, probably for the World's Centennial Cotton Exposition held that year in what is now Audubon Park.) The company also increased pipe sizes and water pressure, so that there was enough power to raise a hydraulic elevator to the tops of the city's tallest buildings. These commercial customers were the mainstay of this, as of any, water company. There was a charge for a connecting fee, and a water use charge. This would increase from 37.4 cents for 1,000 gallons in 1884 to 86 cents in 1886. Although charged with finding a way to purify the water provided, the company was not able to do so. In fact, an 1893 effort at purification cost the company $200,000 and still produced no useful results. (Magill, 60-62, Waterworks Company Reports; Earl, 22))

Even with a water company in operation, the largest number of New Orleans residents had no water connection. Cisterns collected rainwater for drinking by most residents. In time of drought when cisterns went dry, the water company strongly protested opening fire hydrants for public water use.

In 1889 the company complained that opening the hydrants lowered water pressure so much that commercial elevators could not run. The poor had so little recourse to piped running water that when the Kingsley House settlement opened just a few blocks from the reservoir, one of the attractions that brought in neighbors for programs was the water faucet in the front yard. (Water Company Reports, Magill, 61; Kolb, 6)

The fire hydrants, for which the city paid $60 per year each, did assure better fire protection as more water mains were added. But, since the water company turned off its pumps every night, the added fire protection was only during daylight hours. This continued until 1889. In spite of their obvious shortcomings, the water company, ever litigious, went to court to assure that no other company could supply the city with water and had their monopoly upheld in an 1887 decision. (Water Company Reports, Magill, 62.)

The true turning point in New Orleans' slow passage to modernity in infrastructure was the formation in 1879 of the New Orleans Auxiliary Sanitary Association, a business group that advocated improved sanitation for better public health. They raised private money to improve drainage—in one project they widened and deepened a canal along Toulouse Street—and they purchased pumps for the city to use to clean out the ever-filthy gutters, and in the process also improved canal drainage as the water flowed forcefully from the river towards the lake. The water company in this case allowed them to pump their own river water. (Magill, 67-69)

In the 1888 municipal elections a reform ticket took office, and immediately charged the prior "ring"—what would become the Old Regulars, or the Regular Democratic

Organization—with wasting money and making no improvements. They attacked John Fitzpatrick, who had been in charge of public improvements, with wasteful hiring. Fitzpatrick, who had tried hard with little money, was replaced by ex-Confederate General P.G.T. Beauregard, who, faced with an almost non-existent budget, quickly quit. The organization of the New Orleans Paving and Drainage Association in 1886 put another good-government group into the fray, but their support of a 3 mil tax for paving and drainage was futile and the measure was defeated at the polls in 1888. (Magill, 72-81)

Although we think of New Orleans' drainage problems today as something associated with heavy rains, in the nineteenth century the worst water threat came from the Mississippi River. The devastating effects of a flood in 1890 resulted in the Louisiana Legislature's creation of the Orleans Levee Board that year to oversee protection of the city from river floods. The same John Fitzpatrick who had good intentions as director of public improvements was elected Mayor, and in 1892 he contracted for a topographical survey of the city, the first step toward a modern drainage system. Unfortunately, there was no money to fund the recommended projects (Dupont, 179-185).

The solution began with state legislative action in 1896. The Louisiana Legislature set up and funded a drainage board for the city in that year. The city engineer, in 1895, had drawn up some drainage canal plans. When the drainage commission was created, B.M. Howard was hired as Chief Engineer and began construction of the drainage canal system in 1897. The canals would have seven pumping stations to send the water on a circuitous route up and out to Lake Pontchartrain. (It is tempting to speculate whether or not the New Orleans Sewerage and Water

Board metal meter covers have a design of seven stars on radiant spokes from a crescent moon for the seven planned pumping stations.)

Improved canals brought improved drainage, and improved death rate statistics. As mosquito breeding spots decreased, deaths per thousand went from 27 to 22 in just one year in 1900. And, only after 1900, when the specific connection between mosquitoes and yellow fever became known, did New Orleans begin eliminating other breeding spots, including treating cisterns (Behrman, 4,5; Earl, 21).

As usual, New Orleans civic improvement had to proceed not only on the physical level of actual construction, but on the political and legal levels as well. A Municipal Improvement Association was formed in 1897 and campaigned for passage of a tax to support development of a sewerage and water system. The tax passed in June, 1899, and legislative action plus passage of a state Constitutional Amendment put the independent water and sewerage board into existence in 1899 (Dupont, 184).

In 1898, under the administration of Mayor Walter Flower, the city had begun the effort to combine drainage, sewerage and water under public control. The first step was elimination of the private water company. Predictably, the court fight was long and difficult, wending its way up to the Louisiana State Supreme Court in 1901 before the city was allowed to take over the waterworks. Even at that, the water company still had some customers and supplied water for the fire hydrants until the systems were combined in 1909. (Jackson, 156.)

In April, 1900, New Orleans voters passed a bond issue for large capital projects and the drainage and sewerage and water systems set up a revenue sharing plan. George Earl, as chief engineer for the projects, set to work. Earl , a Civil Engineer originally from New Jersey and a graduate of Lafayette college in Easton, Pennsylvania, had constructed the sewers of Montgomery, Alabama, and in 1890 began work for the private New Orleans Sewerage Company. He would become superintendent of the New Orleans Sewerage and Water Board and serve in that capacity until 1930. The water infrastructure of the city today is due in main part to the innovative design work and the willingness to experiment—both with technology and with human talent—of George Earl. (Who Was Who, 353; Dupont))

Predictably, Earl's first obstacle was political—one of the Old Regulars wanted the city to contract with a private company to bring in water from a source (not named) other than the Mississippi. Earl insisted that Mississippi River water could be made pure. A test purification station was built at Audubon Park. Ultimately Earl would be proven correct: Mississippi River water could be made pure and wholesome (and Earl's test to prove it only cost $25,000.) (Dupont, 191-194; Earl, 1-9)

Another early decision in construction of the water infrastructure was for the separation of the sewerage and drainage systems. Memphis, in construction of that city's system, had faced a similar problem and, unfortunately, their first sewerage system was poorly designed and had to be reconstructed. Earl managed to avoid a similar occurrence and to take the best of current knowledge of civil engineering and apply it to New Orleans' problems. His solution was a good one—separate drainage and sewerage lift and pumping stations and canals designed by him are

operating today. (Sorrels)

In an address in April of 1904 to the citizens' group, the Progressive Union, George Earl's description of his planned work stressed the difficulties New Orleans faced: high rainfall, the fact that all drainage water and all sewerage would have to be lifted up to be drained out of the city, the problems of digging underground in the water-laden soil and clay underneath Orleanians' feet. Nothing was easy: gravity-flow was non-existent, water volume would be immense, little of what infrastructure was current could continue in use. Mississippi River water was not acceptable without adequate filtering and purification. In short, the city had to do everything the hard way and everything had to start from scratch—in fact, when it was considered that for any of the old water company's pipe to be used at all, new pressure-reducing valves would have to invented and connected to tie the systems together, it was more difficult than starting from scratch would have been. (Earl 1-30)

Creation of an infrastructure of this immensity was not without its crises and its critics. Speaking to the Progressive Union, George Earl was succinct in summing up the situation at hand:

"When the people of New Orleans voted to construct and operate Drainage, Sewerage and Water Works Systems in a city in which either one of the three systems has to be constructed in the face of a rather unusual combination of natural difficulties, and always thereafter operated by the power of pumps and at a considerable cost, they boldly undertook a very extensive and expensive work, in the accomplishment of which they must aid in many ways besides in the

payment of taxes...

"It is certain that the main hope which the Sewerage and Water Board can have of a successful outcome of its great works lies in that character of aid and support which can only come from an intelligent comprehension of these works by a large element of thoughtful people who will understand the necessities of the general situation, recognize the limitations which surround it, and will not be carried off of their feet by every hew and cry which may come from such critics as are certain to arise..." (Earl, 1-2)

This "progressive" ideal as expressed by Earl, his belief that enlightened citizens armed with knowledge of the facts would support modernization efforts not only with their tax money but with public opinion, places New Orleans in the mainstream of early twentieth century reform. Yet, even if New Orleanians were much like residents of those Southwestern cities who "built the town in defiance of nature's meagre endowments for settlement and growth," they differed in one important way from the Southwestern reformist trend chronicled in Amy Bridges's Morning Glories: Municipal Reform in the Southwest. Rather than the city being controlled solely by reform elements, in New Orleans the boss and the political machine were important parts of this Progressive era infrastructure building. (Bridges, 208.)

Martin Behrman served as Mayor of New Orleans from 1904 to 1920. During his tenure he built the "ring," the Old Regulars, into a formidable machine. At the same time he presided over the completion of the mammoth water infrastructure projects. This combination of machine

politics with progressive modernization even extended to the city's form of government, which changed from the alderman style to a commission council in 1912—halfway through the Behrman era. (Jackson)

Behrman perhaps was following in the footsteps of another machine mayor, John Fitzpatrick, who also did what he could for the city's infrastructure. As a machine politician, Behrman was perhaps a strange headliner on the program of the progressivist League of American Municipalities Convention in Milwaukee in 1914, but his address "New Orleans: A History of Three Great Public Utilities—Sewerage, Water and Drainage—and their Influence upon the Health and Progress of a Big City" was well received. (Behrman, 16)

Not only could he brag that New Orleans was now "a good place to live," but Behrman could impress his listeners with the scientific breakthroughs of the Sewerage and Water Board's own inventor, A.B. Wood, whose horizontal version of the screw-type pump, with its ease of maintenance and sturdiness of construction would soon be in demand worldwide for difficult drainage projects. (Behrman, 10-16)

For a turn-of-the-century Southern city to finance and construct such an vast and intricate infrastructure was remarkable. Even more remarkable is the fact that most of it is still functioning nearly a century later: the water purification plant at the upriver end of the city looks much as it did in 1908 when it opened.

The light and airy interiors of the masonry buildings, done in Mediterranean style, hum

with the sound of pumps and the distant gurgle of water in the flat expanses of the holding tanks and flocculation basins. Perhaps it is due to George Earl, or perhaps New Orleans's own civic personality gives the water purification plant its pleasant, if somewhat humid, atmosphere—certainly it is nothing like the description in E.L. Doctorow's novel "The Waterworks" of New York's Croton Aqueduct plant, with its "stone entry hall. . poor lit, like a mine" and "cavernous chamber . . . at the bottom of which was a vast inner pool of roiling water . . . churning up a mineral mist, like a fifth element" with "growing everywhere on the blackened stone walls, patches of moss and lichen and bearded slime."(Doctorow 266)

Behrman, in the conclusion of his 1914 convention speech, gave a fitting summation of New Orleans's successful twentieth century municipalization efforts:

"These three great public utilities stand enduring monuments to the courage, determination and infinite resourcefulness of a people who cheerfully and with much self-denial made them possible of accomplishment, and no less are they tributes to the ability, zeal and splendid engineering skill of those who devised and brought them to a successful consummation, in spite of most disheartening conditions." (Berman, 16)

As New Orleans begins the twenty-first century, a study is underway on the possibility of returning the water and sewerage systems to private enterprise, in line with the contemporary theory that holds that government should, itself, function as a business would, always searching for the efficient, the cost-effective, the customer-pleasing answer to the problems of the civilized

community. As this city has tried to satisfy the same need over the past two hundred years, the solutions have varied. The pattern has been one of change, rather than one of consistency. Thus the water system was at various times part of government, owned by a stock company, and the property of a franchise-holding bank. Although the longest time period in which the entire system was completely municipalized has so far been the 91 years until the present date, it is possible —and indeed probable—that this will be soon changed. Whether that is for good or for ill is yet to be proved.

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